

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 10277389
PUBLICATION DATE : 20-10-98

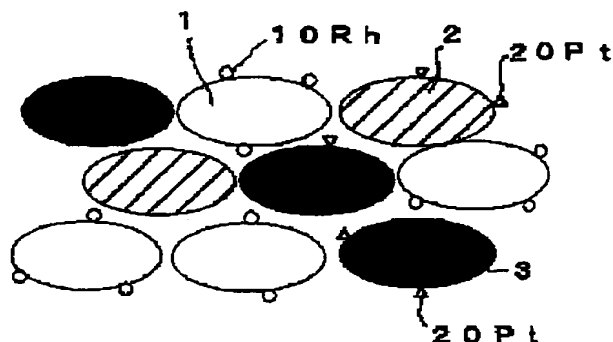
APPLICATION DATE : 02-04-97
APPLICATION NUMBER : 09084042

APPLICANT : TOYOTA CENTRAL RES & DEV LAB
INC;

INVENTOR : MATSUOKA SERIKO;

INT.CL. : B01J 23/46 B01D 53/86 B01D 53/94
B01J 21/04 B01J 23/63

TITLE : CATALYST FOR CLEANING EXHAUST
GAS



ABSTRACT : PROBLEM TO BE SOLVED: To prepare a catalyst for cleaning exhaust gas for controlling the lowering of cleaning performance generated by the reaction of Rh with a carrier under the high temperature atmosphere of 900°C or higher, keeping the Rh dispersion properties at the high level and improving heat resistance.

SOLUTION: A catalyst for cleaning exhaust gas is composed of a first catalyst formed of a first porous carrier 1 carrying Rh and a second catalyst carrying at least one kind of Ph and Pd in a mixture of a second porous carrier 2 and a ceria-zirconia composite oxide 3, and the first porous carrier 1 is composed of θ -alumina of specific area of 50 m²/g or more. As θ -alumina is more excellent in stability at the high temperature than that of γ -alumina, Rh is hard to dissolve in alumina crystals and also the sintering of Rh following the phase change and grain growth of alumina is controlled to maintain sufficiently the activities of Rh at the high temperature.

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XP-002399292

13/18 - (C) WPI / Thomson

AN - 1989-058534 [08]

AP - JP19870168128 19870706; [Based on JP1011643 A 00000000]

CN - R01423-X R01784-X

CPY - TOYW; TOYT

DC - E36 J01 J04

DCR - [1] 129342 USE REM; 129360 RCT; 129798 REM; 130360 RCT; 131652 REM;
131663 REM; 1328 RCT; 63 REM; 7 REM; 783 USE REM; 80 REM; 9 REM

DR - 1423-U 1506-S 1521-S 1784-U

DW - 198908; 199412

IC - B01J23/56; B01D53/36; B01J35/04; B01J37/02

IN - FUKUI M; KIMURA M; MATSUMOTO S; MIYOSHI N; MURAKI H; SOFUGAWA H

LNKA- 1989-026069

M3 - [01] C106 C108 C550 C730 C800 C801 C802 C803 C805 C807 M411 M750 M903
M904 M910 N441 Q431; R01423-X

- [02] C107 C108 C307 C520 C730 C800 C801 C802 C803 C804 C807 M411 M750
M903 M904 M910 N441 Q431; R01784-X

- [03] M210 M211 M212 M213 M214 M215 M216 M220 M221 M222 M223 M224 M225
M226 M231 M232 M233 M320 M416 M610 M620 M750 M903 M904 N441 Q431;
8908-D2801-X

- [04] A540 A758 A940 C108 C550 C730 C801 C802 C803 C804 C805 C807 M411
M730 M903 M910 Q421

M5 - [05] A545 A546 C810 M411 M730 M903 Q421

MC - E34-E E35-L J01-E02D J04-E04 N02-E N02-F02 N03-A N03-B

PA - (TOYW) TOYOTA CENT RES & DEV LAB

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PN - JP1011643 A 19890117 DW198908

JP6015040B B 19940302 DW199412

PR - JP19870168128 19870706

XIC - B01J-023/56; B01D-053/36; B01J-035/04; B01J-037/02

AB - Catalyst consists of a first oxide layer (a) of Ce and Zr formed on a
monolithic support, a first alumina layer (b) loaded with Pd formed on
(a), second oxide layer (c) of Ce and Zr formed on (b), and second
alumina (d) or zirconia layer (e) loaded with Rh formed on (c).
Pref. the second alumina layer is made of La-contg. alpha-alumina.
Alumina stabilised with rare earth metal oxide, esp. La2O3 or Nd2O3,
or alkaline earth metal oxide is used for (b) and (d). Esp. gamma-,
delta- or theta-alumina is used.

- USE/ADVANTAGE :

Used as a three-way catalyst removing CO, hydrocarbons, and NOx from
combustion exhaust. The catalyst uses low cost Pd in place of
expensive Pt. Pd and Rh are loaded on the sepd layers, so that the
catalyst can remove NOx efficiently even at a high temp above 600
deg.C.

INW - FUKUI M; KIMURA M; MATSUMOTO S; MIYOSHI N; MURAKI H; SOFUGAWA H

IW - WASTE GAS PURIFICATION CATALYST COMPRISE CERIUM ZIRCONIUM OXIDE LAYER
ALUMINA LOAD PALLADIUM COATING RHODIUM

IWW - WASTE GAS PURIFICATION CATALYST COMPRISE CERIUM ZIRCONIUM OXIDE LAYER
ALUMINA LOAD PALLADIUM COATING RHODIUM

NC - 1

NPN - 2

OPD - 1987-07-06